



**Are some molds more hazardous than others?**  
Some types of mold are more hazardous because they can produce chemical compounds called mycotoxins. They do not, however, always do so. Molds that are able to produce toxins include some common types. In some circumstances, these toxins may cause more serious health problems. Regardless of whether it produces toxins, all indoor mold growth is potentially harmful and should be removed promptly.



## Introduction

There are many sources of indoor air pollution including pollen, dust mites, animal dander, viruses, fungi, bacteria and mold. This brochure describes one of the more common indoor air pollutants-mold.

**What is Mold?**  
Molds are any of several types of fungi and can be found almost anywhere. Particles of mold too small to be seen are present in indoor and outdoor air. Molds can grow on many substances, where moisture is present, including wood, paper, carpet, insulation, and foods. In nature, molds help to break down dead materials and can be found growing in soil, on plant matter, and on other organic matter. Molds produce microscopic cells called "spores" which spread easily through the air. Mold spores act like seeds, forming new mold growth (colonies) when they find the right conditions: moisture and nutrients.

**Should I be concerned about mold in my home?**  
Mold should not be permitted to grow and multiply indoors. When this happens, health problems can occur and building materials, goods and furnishings may be damaged.

## Health Effects

**Can mold make my family and me sick?**  
People are mainly exposed to mold by breathing spores or other tiny fragments of mold. The types and severity of symptoms depend, in part, on the types of mold present, the extent of an individual's exposure, the ages of the individuals, and their existing sensitivities or allergies. Those with special health concerns should consult a medical professional if they feel their health is affected by indoor mold.

**What symptoms might I see?**  
The most common health problems caused by indoor mold are allergy symptoms. Although other and more serious problems can occur, people exposed to mold commonly report problems such as:

- nasal and sinus congestion
- cough
- wheezing/breathing difficulties
- sore throat
- skin and eye irritation
- upper respiratory infections (including sinus)



## Home Investigation

**How do I tell if I have a mold problem? Investigate.**  
The most practical way to find a mold problem is by using your eyes to look for mold growth and by using your nose to locate the source of a suspicious odor. If you see mold or if there is an earthy or musty smell, you should assume a mold problem exists. Other clues are signs of excess moisture or the worsening of allergy-like symptoms.

- Look for visible mold growth (may appear cottony, velvety, granular, or leathery and have varied colors of white, gray, brown, black, yellow, green). Mold often appears as a discoloration, staining, or fuzzy growth on the surface of building materials or furnishings.
- Search areas with noticeable mold odors.
- Look for signs of excess moisture or water damage. Look for water leaks, standing water, water stains, and condensation problems. For example, do you see watermarks or discoloration on walls, ceilings, carpeting, woodwork or other surfaces?
- Search behind and underneath materials (carpet and pad, wallpaper, vinyl flooring, sink cabinets), furniture, or stored items (especially things placed near outside walls or on cold floors). Sometimes destructive techniques

may be needed to inspect and clean enclosed spaces where mold and moisture are hidden; for example, opening up a wall cavity.

**Should I test for mold?**  
In most cases, testing for mold is not necessary. The South Carolina Department of Health and Environmental Control does not test for mold. Instead, you should simply assume there is a problem whenever you see mold or smell mold odors. Testing for mold could use up resources that are needed to correct moisture problems and remove existing mold growth.

Sometimes, mold growth is hidden and difficult to locate. In such cases, a combination of air (outdoor and indoor air samples) and bulk (material) samples may help determine the extent of contamination and where cleaning is needed. However, mold testing is rarely useful for trying to answer questions about health concerns.





Mold Clean-up and Removal

To clean up and remove indoor mold growth, follow steps 1-6 as they apply to your home.

1. Identify and Fix the Moisture Problem

The most important step in solving a mold problem is to identify and correct the moisture sources that allowed the growth in the first place. Common indoor moisture sources include:

- Flooding
- Condensation (caused by indoor humidity that is too high or surfaces that are too cold)
- Movement through basement walls and slab
- Roof leaks
- Plumbing leaks
- Overflow from tubs, sinks, or toilets
- Firewood stored indoors
- Humidifier use
- Inadequate venting of kitchen and bath humidity
- Improper venting of combustion appliances
- Failure to vent clothes dryer exhaust outdoors (including electric dryers)
- Line drying laundry indoors
- House plants - watering them can generate large amounts of moisture

To keep indoor surfaces as dry as possible, try to maintain the home's relative humidity between 30-50 percent year round. You can purchase devices to measure relative humidity at some home supply stores. Ventilation, air circulation near cold surfaces, dehumidification, and efforts to minimize the production of moisture in the home are all very important in controlling high humidity that frequently causes mold growth in warm and humid climate.

2. Begin Drying All Wet Materials As Soon As Possible

For severe moisture problems, use fans and dehumidifiers and move wet items away from walls and off floors.

3. Remove and Dispose of Mold Contaminated Materials

Items which have absorbed moisture (porous materials) and which have mold growing on them need to be removed, bagged and thrown out. Such materials may include sheet rock, insulation, plaster, carpet/carpet pad, ceiling tiles, wood products (other than solid wood), and paper products. Non-porous materials with surface mold growth may be saved if they are cleaned well and kept dry (see step 4).

- Take Steps to Protect Yourself - the amount of mold particles in air can increase greatly when mold is disturbed. Consider using protective equipment when handling or working around mold contaminated materials.

The following equipment can help minimize exposure to mold:

- Rubber gloves
- Eye goggles

- Outer clothing (long sleeves and long pants) that can be easily removed in the work area and laundered or discarded.
- Medium-efficiency or high-efficiency filter dust mask (these can be found at safety equipment suppliers, hardware stores, or some other large stores that sell home repair supplies) -- at a minimum, use an N-95 or equivalent dust mask.
- Take Steps to Protect Others - plan and perform all work to minimize the amount of dust generated. The following actions can help minimize the spread of mold spores:
  - Hang plastic sheeting to separate the work area from the rest of the home. Enclose all moldy materials in plastic (bags or sheets) before carrying through the home.
  - Remove outer layer of work clothing in the work area and wash separately. Disposable clothing is recommended during a medium (10-100 square feet) or large (greater than 100 square feet) mold-removal project.
  - Damp clean the entire work area to pick up settled contaminants in dust

4. Clean Surfaces

Surface mold growing on non-porous materials such as hard plastic, concrete, glass, metal, and solid wood can usually be cleaned. Cleaning must remove and capture the mold contamination, because dead spores and mold particles still cause health problems if they are left in place.

- Thoroughly scrub all contaminated surfaces using a stiff brush, hot water and a non-ammonia soap/detergent or commercial cleaner.
- Collect excess cleaning liquid with a wet/dry vacuum, mop or sponge.
- Rinse area with clean water and collect excess rinse water. Discard excess wet cleaning materials properly. Items that can't be cleaned should be sealed in plastic bags and disposed of as normal waste.

5. Disinfect Surfaces (if desired)

After cleaning all visible mold and other soiling from contaminated surfaces, a disinfectant may be used to kill mold missed by the cleaning.

- Mix 1/4 to 1/2 cup bleach per gallon of water and apply to surfaces where mold growth was visible before cleaning. The solution can be applied with a spray bottle, garden sprayer, can be sponged on, or applied by other methods.
- Collect any run-off of bleach solution with a wet/ dry vacuum, sponge or mop. Discard excess wet cleaning materials properly. However, do not rinse or wipe the bleach solution off the areas being treated -- allow it to dry on the surface.

Always handle bleach with caution. Never mix bleach with ammonia -- toxic chlorine gas may result. Bleach can irritate the eyes, nose, throat, and skin. Provide fresh air (for example, open a window or door). Protect skin and eyes

from contact with bleach. Test solution on a small area before treatment, since bleach is very corrosive and may damage some materials.

6. Remain on MOLD ALERT

Continue looking for signs of moisture problems or the return of mold growth. Be particularly alert to moisture in areas of past growth. If mold returns, repeat cleaning steps and consider using a stronger solution to disinfect the area again. Mold returning may signal that the material should be removed or that moisture is not yet controlled.

When can we rebuild?

Rebuilding and refurbishing must wait until all affected materials have dried completely. Be patient, it takes time to dry out wet building materials. A moisture meter may help measure drying progress.

Can ozone air cleaners remove indoor mold?

Some air cleaners are designed to produce ozone, which is a strong oxidizing agent and a known irritant of the lungs and respiratory system. Studies have shown that ozone, even at high concentrations, is not effective at killing airborne mold or surface mold contamination. Health experts do not recommend the use of ozone to address mold or any other indoor air problems.

Questions

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Internet Resources

SC DHEC – Bureau of Air Quality  
[www.scdhec.gov/baq](http://www.scdhec.gov/baq)

U.S. Environmental Protection Agency (EPA)  
[www.epa.gov/molds](http://www.epa.gov/molds)

EPA Publications  
[www.epa.gov/iaq/pubs/index.html](http://www.epa.gov/iaq/pubs/index.html)

Centers for Disease Control and Prevention (CDC)  
[www.cdc.gov/nceh/airpollution](http://www.cdc.gov/nceh/airpollution)

Community Environmental Health Resources Center  
[www.cehrc.org/tools/moldmoisture/index.cfm](http://www.cehrc.org/tools/moldmoisture/index.cfm)

American Lung Association  
[www.lungusa.org](http://www.lungusa.org)  
[www.healthhouse.org](http://www.healthhouse.org)

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